

Destructive Beetles: A Note on Landscape Gardening.

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(Plate V.)

The group of inland lakes feeding the Fox River in northern Illinois has lately sprung into popularity. Pistakee Bay is one of these pleasure resorts where the busy people of Chicago find a summer's recreation. During the times of its inhabitation by the Indians the region about this picturesque spot had become thickly studded with a forest of oaks and hickory extending far inward. The advent of the pioneer farmer in 1825 necessitated the clearance of the oak forest, but for practical, if not for aesthetic reasons a narrow fringe of timber was left outlining the rolling gravel banks along the shore. Twenty years ago sportsmen from Chicago discovered this retreat and advertised its popularity.

The wooded shore line, which had been regarded as useless farm land was surveyed and the lots found ready purchasers. One of the first who chanced upon this delightful place was especially assiduous in introducing "improvements," which consisted chiefly in keeping the grass cropped and free from fallen autumn leaves.

All went well until about five years ago. Then the twigs clipped by *Elaphidion villosum* became especially numerous. *Orthosoma*, *Clytus* and *Saperdas* flew nightly to the lighted windows. The shelf-fungus, *Polyporus*, started growing on some of the grander old oaks, and suddenly the fact was noticed that the prized trees were better in a wood-pile. The accompanying photograph clearly shows their condition at the time.

Why should not the dying trees have included the neighbors? A line of dead trunks practically marked the limits of the property under notice, while on either side the trees were still flourishing. The contour of the land will help to answer this question. The lots mentioned were selected on account of their wooded hills. On either side the land lies low, mucky from the drainage of the higher ground. This conformation manifests itself also in the character of the trees: in the lowlands the oaks are magnificent, higher the hickories appear. This difference in elevation, although less than twenty-five

feet, causes corresponding differences in vegetation striking enough to be classed almost as mesophytic and xerophytic.

Nature had long ago distributed her trees so that the leaves of the past year helped to grow those of the present, readjusting any unbalance caused by a deficit in the food-material of the soil. Mans' improvements, grass-cutting and leaf-raking, naturally impoverished the soil rendering the incipient xerophytic hill a poor producer. The trees were slowly starved, and in their weakened condition succumbed to the attacks of their insect foes. On the other hand the healthy trees of the lowland were able to withstand the depredations of fungi and boring insects, which probably would have had no incentive for attacking them.

A word of suggestion to similar land owners may be given. If these trees had been kept in health by artificial fertilization possibly they could have withstood the leaf-raking. To replace the abstracted nourishment trenches could have been dug around the trees to be filled with manure or other suitable food at the close of each season. Had this been done the trees would probably have been preserved more effectually than by waging war on the insect foes.

LIST OF THE PRINCIPAL BEETLES INFESTING THE TREES.

Bark-beetles and fungus feeders.

Hister Lecontei Mars.
Ips quadriguttatus Fabr.
Tenebrioides mauritanica Linn.
Pyrochroa flabellata Fab.
Botetophagus bifurca.

Lucanus dama Thunb.
Orthosoma brunneum Forst.
Elaphidion villosum Fabr.
Elaphidion mucronatum Fabr.
Eburia quadrigeminata Say.
Xylotrechus colonus Fabr.

Wood-borers.

Melanotus communis Gyll.
Melanotus decumanus Er.
Melanotus fissilis Say.
Dicerca divaricata Say.
Dicerca asperata Lap & Gory.
Melanophila drummondi Kirby.
Chrysobothris femorata Fab.
Chrysobothris azurea Lec.

Urographis fasciatus Deg.
Alobates pennsylvanica Deg.
Merinus laevis Oliv.
Xylopinus saperdioides Oliv.
Tenebrio tenebrioides Beauv.
Diaporus hydni Linn.
Meracantha contracta Beauv.
Scotobates calcaratus Fabr.
Platydemia subcostatum Lab.

Tenebrio and *Alobates* outnumbered the others, and at the time of emergence could be found by dozens under the loosened bark. The presence of so many wood-borers attracted numbers of parasitic insects, especially ichneumonous and Braconids. The wasp *Cerceris* was also noticed, possibly searching like its European relatives for the Buprestidæ.